

Ultrasonographic Features and Evolution of Bioabsorbable Anchors after Arthroscopic Rotator Cuff Repair: A Retrospective Case Series

Omar MOURAFIQ^{1,2*}, Hicham SALAH², Omar MERGAD²

¹Department of Orthopaedic Surgery and Traumatology, Oued Eddahab Military Hospital Agadir, Morocco

²Faculty of Medicine and Pharmacy of Marrakech

DOI: <https://doi.org/10.36347/sasjs.2026.v12i08.006>

| Received: 07.06.2026 | Accepted: 03.08.2026 | Published: 21.08.2026

*Corresponding author: Omar MOURAFIQ

Department of Orthopaedic Surgery and Traumatology, Oued Eddahab Military Hospital Agadir, Morocco

Abstract

Case Series

Background: Bioabsorbable anchors are widely used in arthroscopic rotator cuff repair, but their postoperative ultrasonographic evolution remains insufficiently described. Ultrasound offers an accessible, non-invasive, and dynamic method for postoperative assessment. **Objective:** To describe the ultrasonographic appearance and evolution of bioabsorbable anchors and detect postoperative complications after rotator cuff repair. **Materials and Methods:** This retrospective single-center study included 20 patients who underwent arthroscopic rotator cuff repair with bioabsorbable anchors between January 2024 and December 2025. Clinical and ultrasound assessments were performed at a mean follow-up of 8 months. **Results:** The mean age was 68 years, with a female predominance (82%). Ultrasound showed preserved tendon continuity and satisfactory healing in most patients. Anchors appeared as hyperechoic structures at the tendon-to-bone interface, with progressively decreasing visibility during follow-up, suggesting resorption and osseous integration. No major postoperative complications were observed. **Conclusion:** Ultrasound is a reliable, accessible, and non-invasive modality for monitoring tendon healing and the progressive evolution of bioabsorbable anchors after arthroscopic rotator cuff repair. It may serve as an effective first-line imaging tool for routine postoperative follow-up. **Keywords:** Rotator cuff repair; Arthroscopy; Bioabsorbable anchors; Ultrasound; Ultrasonography; Shoulder; Tendon healing.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Rotator cuff tears are a common cause of shoulder pain and functional impairment, particularly in older adults. Arthroscopic repair is widely used for symptomatic reparable tears, with suture anchors providing tendon-to-bone fixation. Bioabsorbable anchors have gained popularity because they avoid permanent metallic implants, although complications such as perianchor cyst formation, osteolysis, inflammatory reactions, and migration may occur.

Postoperative imaging is essential for assessing tendon healing and detecting complications. While MRI remains the reference imaging modality, ultrasound offers important advantages, including accessibility, low cost, absence of ionizing radiation, and dynamic real-time assessment. [1,2]. However, the ultrasonographic appearance and temporal evolution of bioabsorbable anchors after rotator cuff repair remain insufficiently documented. This study aimed to describe their ultrasonographic characteristics and evolution over time,

while evaluating tendon healing and postoperative complications.

MATERIALS AND METHODS

This retrospective, single-center, single-surgeon observational study included 20 patients who underwent arthroscopic rotator cuff repair using bioabsorbable suture anchors between January 2024 and December 2025 at the Department of Trauma and Orthopedic Surgery, Oued Eddahab Hospital, Agadir, Morocco. The mean postoperative follow-up was 8 months. Patients with complete clinical and imaging records and regular postoperative ultrasound follow-up were included, while those with incomplete data, inadequate follow-up, or metallic anchors were excluded.

Preoperative assessment included clinical examination, standard radiographs, ultrasound, and MRI. All patients underwent arthroscopic rotator cuff repair in the beach-chair position using bioabsorbable suture anchors. Postoperative ultrasound examinations were

performed with a high-frequency linear transducer to assess tendon continuity and reinsertion, tendon morphology, anchor appearance and position, possible migration, peritendinous fluid collections, and recurrent

tears or other postoperative complications. The echogenicity, visibility, acoustic shadowing, and evolution of the anchors were recorded during follow-up. (Figure 1).

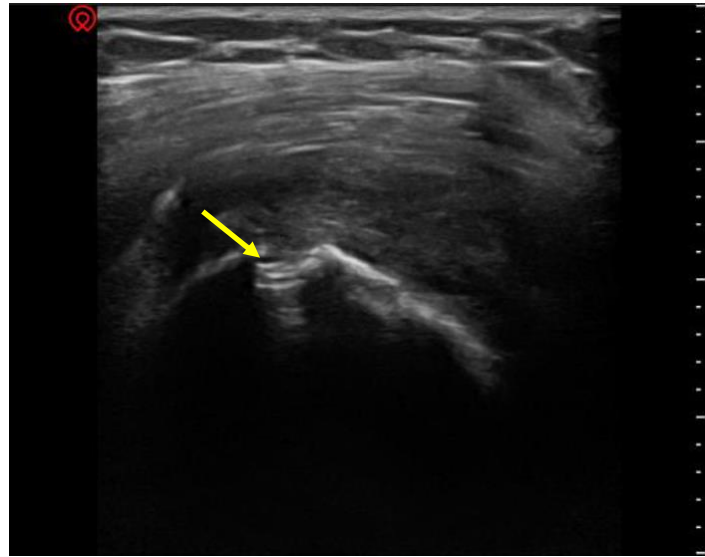


Figure 1: Postoperative follow-up ultrasound of the shoulder of one of our patients, showing continuity of the supraspinatus tendon with visualization of a hyperechoic artifact corresponding to the bioabsorbable anchor at the greater tuberosity. The yellow arrow indicates the bioabsorbable anchor

RESULTS

Twenty patients were included, with a mean age of 68 years and a female predominance (82%). The dominant shoulder was involved in 69% of cases, and the mean symptom duration before surgery was 12 months. Preoperative ultrasound identified 15 full-thickness and 5 partial-thickness supraspinatus tears.

Postoperative ultrasound showed preserved tendon continuity and satisfactory reinsertion in all

patients, with only mild thickening and heterogeneity consistent with normal healing. Bioabsorbable anchors appeared as hyperechoic structures at the tendon-to-bone insertion, sometimes with posterior acoustic shadowing, and their visibility progressively decreased during follow-up, suggesting gradual resorption and osseous integration. No recurrent tear, major anchor migration, infection, significant stiffness, or other clinically relevant postoperative complication was observed. (Figure 2)



Figure 2: Postoperative shoulder ultrasound of one of our patients performed six weeks after rotator cuff repair using bioabsorbable anchors, showing preserved tendon continuity, satisfactory early healing, and no dehiscence or fluid collection. The yellow arrow indicates the bioabsorbable anchor

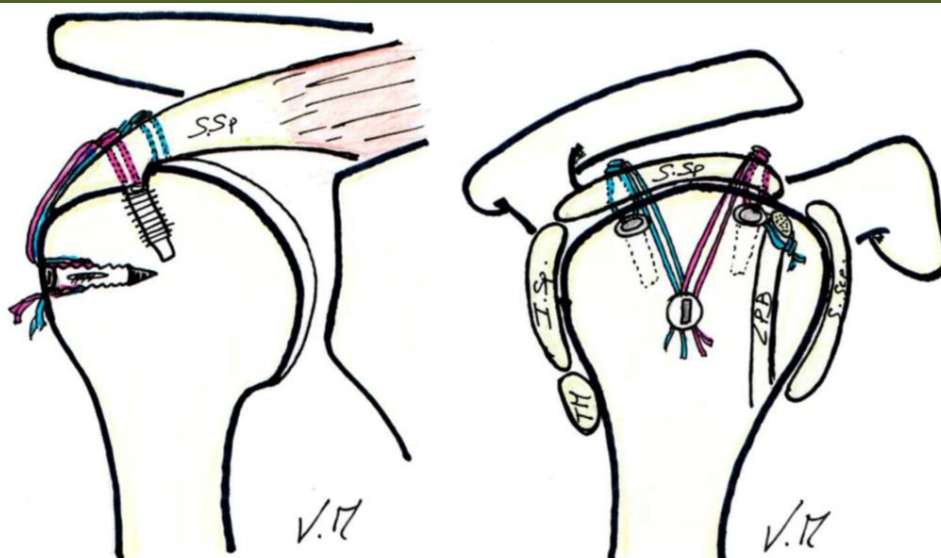


Figure 3: Three-anchor bridge assembly, AP and lateral views. (2)

DISCUSSION

The principal finding of this study is that ultrasound is a useful, accessible, and non-invasive tool for postoperative assessment after arthroscopic rotator cuff repair [3]. In our series, the repaired tendons generally maintained continuity and satisfactory reinsertion, while bioabsorbable anchors showed a characteristic hyperechoic appearance at the tendon-to-bone insertion, with progressive reduction in visibility over time, potentially reflecting bioabsorption and bone integration. (Figure 2,3)

Ultrasound offers several advantages over MRI, including lower cost, wide availability, rapid examination, and the ability to provide dynamic assessment of tendon integrity. [4] Its favorable correlation with MRI in our study supports its use as a first-line imaging modality for routine postoperative follow-up. MRI remains valuable when ultrasound findings are inconclusive or when detailed evaluation of deep bone changes, muscle trophicity, cystic lesions, or complex complications is required. [5,6]

No clinically significant anchor-related complications were observed in our series. However, the retrospective design, small sample size, limited follow-up, and incomplete availability of postoperative MRI limit the generalizability of our findings. Despite these limitations, the homogeneity of the surgical and ultrasound protocols represents a strength of the study. Larger prospective studies with longer follow-up are needed to better define the ultrasonographic evolution of bioabsorbable anchors and establish standardized criteria for their degradation and integration. [7,8]

CONCLUSION

Ultrasound is a useful and reliable first-line imaging modality for postoperative follow-up after arthroscopic rotator cuff repair with bioabsorbable

anchors. It allows assessment of tendon healing, anchor position, and postoperative complications, while the progressive reduction in anchor visibility may reflect bioabsorption and bone integration.

Conflict of Interest: No conflicts of interest.

REFERENCES

1. Hinsley H, Ganderton C, Arden NK, Carr AJ. Prevalence of rotator cuff tendon tears and symptoms in a Chingford general population cohort, and the resultant impact on UK health services: a cross-sectional observational study. *BMJ Open*. 2022;12(9):e059175.
2. Martinel V, Bonneville N. Contribution of postoperative ultrasound to early detection of anchor pullout after rotator cuff tendon repair: report of 3 cases. *Orthop Traumatol Surg Res*. 2020;106(2):229-234.
3. Maloof AG, Hackett L, Bilbrough J, Hayek C, Murrell GAC. Evaluating elastographic tendon stiffness as a predictor of return to work and sports after primary rotator cuff repair. *Orthop J Sports Med*. 2025;13(2).
4. Randelli PS, Menon A, Nocerino E, et al. Long-term results of arthroscopic rotator cuff repair: initial tear size matters. *Am J Sports Med*. 2019;47(11):2659-2669.
5. Van der Bracht H, Van den Langenbergh T, Pouillon M, Verhasselt S, Verniers P, Stoffelen D. Rotator cuff repair with all-suture anchors: a midterm magnetic resonance imaging evaluation of repair integrity and cyst formation. *J Shoulder Elbow Surg*. 2018;27(11):2006-2012.
6. Randelli, P. S., Menon, A., Nocerino, E., Aliprandi, A., Feroldi, F. M., Mazzoleni, M. G., Boveri, S., Ambrogio, F., & Cucchi, D. (2019). Long-term Results of Arthroscopic Rotator Cuff Repair: Initial Tear Size Matters: A Prospective Study on Clinical

- and Radiological Results at a Minimum Follow-up of 10 Years. The American Journal of Sports Medicine, 47(11), 2659–2669. <https://doi.org/10.1177/0363546519865529>
7. Collin, P., Jossaume, T., Massaito, Y., & Lucas, C. (2015). L'échographie est-elle aussi performante que l'IRM pour analyser la cicatrisation du supra-épineux après réparation arthroscopique ? Résultats d'une étude prospective comparative de 62 cas. *Revue de Chirurgie Orthopédique et Traumatologique*, 101(7), S242. <https://doi.org/10.1016/j.rcot.2015.09.248>
8. Yao, L., Pang, L., Li, Y., & Tang, X. (2023). Intraoperative Channeling in Arthroscopic Rotator Cuff Repair: Letter to the Editor. The American Journal of Sports Medicine, 51(9), NP26–NP26. <https://doi.org/10.1177/03635465231173856>